

PATENT ABSTRACTS OF JAPAN

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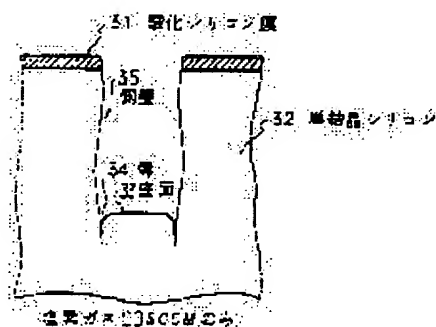
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(54) PROCESSING METHOD FOR SEMICONDUCTOR MATERIAL

(57)Abstract:

PURPOSE: To obtain a processed form having a smooth bottom surface and a controlled type of side wall by a controlled mixed gas, by progressing simultaneously the etching of semiconductor material and the forming of silicon thin film of groove side wall.

CONSTITUTION: In case a high frequency electric power is impressed to the chlorine gas of 20SCCM, a portion in which the processed width of a single crystal silicon 32 is wider than the pattern size of oxide silicon film 31 is produced, and grooves 34 are formed in the edge part of a bottom surface 33. This short coming can be corrected by mixing the chlorine gas with another gas inducing deposition. As for a side wall 35, the energy and density of collision ion are smaller as compared with the bottom surface 33, thereby a gas mixing is made possible which progresses the etching on the bottom surface 33 and induces a deposition on a side wall 35. By adjusting the mixing ratio of gas, the taper-angle of the side wall can be changed from an inverse type to a normal type. By controlling the quantity of the deposition species, grooves 34 in the edge part can be controlled.



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